

Hope for eradicating brain cancer

Improving the lives for people with fast-growing, high-grade brain tumours

Brain tumours are the most common cause of death from cancer in infants, children and adolescents. Of these, medulloblastoma is the most common and aggressive type of tumour, and more than 70 percent of these occur in children younger than 10.

Since the advent of a modestly effective surgery, chemo- and radiotherapy regime over 20 years ago we still have an unacceptably low survival rate of less than 50%. The current therapeutic approach also leaves most survivors at an increased risk of other cancers and incapable of leading independent lives due to side effects of the chemo- and radio-therapy.

Therapies targeted to the biology of the tumour, that spare the effects on normal brain cells, will make an enormous difference to the survival and quality of life for these children, and their families.



IMB Research Fellow Dr Laura Genovesi is a leader of an international team which recently discovered that Palbociclib, an oral drug approved for breast cancer treatment, can shrink medulloblastoma.

Working with the Fred Hutchinson Cancer Research Center in Seattle, the IMB cancer biologist and her colleagues used genetic analysis of medulloblastoma to predict whether these tumours would respond to already-approved drugs.

Based on this analysis, advanced patient tumour models were treated with Palbociclib over a short period. Previous studies in breast cancer suggested that Palbociclib would slow tumour growth. Discovering that it actually shrank the tumours was a stunning outcome.

Some tumours recurred once treatment with Palbociclib stopped, probably due to resistant cells within the tumour. The next important step is to combine this new therapy with the existing chemo-andradio-therapy, as well as other new drugs. If the clinical trial is successful, the researchers and their supporters can be proud of contributing to this major step forward towards a cure.

Impact and outcomes

Through these breakthrough findings Dr Genovesi and colleagues have identified an approved drug for breast cancer, that can be an effective drug targeted to the biology of specific tumour cells in paediatric and adolescent brain cancer. This reduces the need for cytotoxic treatments that are destructive to the healthy developing brain and other organs. Importantly, this will change both how a child's tumour is treated and their future physical and brain development outcomes.

"We will find and develop new therapies for young patients with aggressive brain cancer that improve their survival outcomes and reduce the side effects they suffer."



Researcher profile

Dr Laura Genovesi

Dr Laura Genovesi is an IMB research fellow in the Cancer and Cell Signalling Group.

Being a leader within the team that has discovered a novel targeted therapy for medulloblastoma and seeing this data form the basis of a Phase I clinical trial in paediatric patients has been one of the highlights of her scientific career to date.

Inspired by these results and outcomes, Dr Genovesi is keen to develop and test new targeted therapies that are effective against a range of medulloblastoma. Her emerging leadership in this field has not gone unnoticed.

Dr Genovesi is the second recipient of the Ethan Davies Fellowship, which supports collaborative preclinical experiments and enables access to Australia's only self-contained x-ray irradiation machine.

She is also is one of five recipients selected by an international panel of experts to receive an Early Career Fellowship from the Cure Brain Cancer Foundation towards her functional genomics and bioinformatics studies into potential new therapies.

Your opportunity to support game changing research at the Institute for Molecular Bioscience

Together, our greatest days lie ahead.

Here are just a few ways that giving to UQ's Institute for Molecular Bioscience research can support our drive to develop cancer treatments without debilitating side effects.

- \$2,500 Develops a greater understanding what might predict patients' sensitivity and/or durable response to a particular therapy.
- \$10,000 Funds opportunities for showcasing our discoveries internationally and connecting with potential collaborators.
- \$50,000 Supplies vital scientific materials for investigating combinations of novel therapies that may become treatment options.
- \$100,000 Ignites further preclinical studies to advance an innovative idea from lab bench to patient outcome.

We welcome your suggestions for other ways to support IMB's research and help accelerate the translation of discoveries into benefits and hope for young patients and their families.

For more information contact:

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"There is still so much to do, and so many questions that need answering to ensure Palbociclib gets through clinical trials, and, ultimately is approved for standard treatment for infants and children diagnosed with brain tumours.

Let's keep fighting together and increase awareness of this horrible disease. Because as long as there is funding for research, I know that we will find a cure."

Dr Laura Genovesi

Institute for Molecular Bioscience

